



TD74-6430  
Revision A  
Effective Date: September 23, 2004

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# ORGANIZATIONAL ISSUANCE

## TD74

### EXPERIMENTAL FLUID DYNAMICS GROUP

# STANDARD OPERATING PROCEDURE FOR NON-CRITICAL LIFTS

## Revision A

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## DOCUMENT HISTORY LOG

Status (Baseline/ Revision/ Canceled)	Document Revision	Effective Date	Description
BASELINE	BASELINE	12/02/01	
Revision	A	09/23/04	Updated due to CAITS 04-DA01-0387. Changed title to include SOP and OI ID from TD74-200 to TD74-6430. Corrected the spelling of the word "fraying" used thru-out the Appendices

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## NON-CRITICAL LIFTS

### 1.0 SCOPE

1.1 Scope. This instruction establishes the control and safety requirements for non-critical lifts by Structural and Dynamics Testing Group personnel, including overhead cranes, forklifts, and aerial lifts.

1.2 Purpose. This instruction contains information for lift use, implementing the requirements set forth in MWI 6430.1.

### 2.0 APPLICABILITY

This instruction applies to all non-critical lifts by personnel in TD74 North Test AREA (i.e. Buildings 4732, 4775, 4776 and 4777).

### 3.0 DOCUMENTS

#### 3.1 Applicable Documents

None

#### 3.2 Referenced Documents

29 CFR 1910.179 Overhead and Gantry Cranes.

MPR 8715.1 Marshall Safety, Health, and Environmental (SHE) Program and all references pertaining to it.

MWI 3410.1D Personnel Certification Program

MWI 6430.1 Lifting Equipment and Operations.

NSS/GO-1740.9B Safety Standard For Lifting Devices And Equipment.

### 4.0 DEFINITIONS

None

### 5.0 INSTRUCTION

5.1 SUPERVISOR: Shall ensure only certified crane/hoist operators operate cranes/hoists and that all safety requirements for performing a safe lift are followed.

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5.2 CRANE/HOIST OPERATOR: Shall be responsible for safe movement of the load. The crane/hoist operator shall stop a lift when they believe the lift is unsafe and can refuse to continue until concerns are reported and addressed.

5.3 FORKLIFT OPERATORS: Shall be responsible for safe movement of the load. Forklift operators can refuse to operate a lift they believe is unsafe until the concerns are addressed.

## 6.0 NOTES

NONE

## 7.0 SAFETY PRECAUTIONS AND WARNING NOTES FOR CRANE AND HOIST

All personnel involved in lift operations shall wear appropriate Personal Protective equipment (PPE).

7.1 For cranes and hoists, the Operator shall

7.1.2 Know where the crane disconnect switch is located.

7.1.3 Verify that operator's daily checklist has been performed and filed and that there are no restrictions to the hoist or crane's use. If the daily checklist is not filed, perform the checklist and file it. Any malfunctioning hoist or crane should be tagged as "out of order", and the crane disconnect switch thrown to the off position, and facilities called to report the problem. Establish safety zones with appropriate barriers.

7.1.4 Before starting the hoist or crane, the operator shall be certain that all personnel are clear.

7.1.5 Not lift more than the rated load of the hoist or crane and auxiliary lifting equipment.

7.1.6 Not lift people or loads over people.  
Personnel shall not be allowed under a suspended load.

7.1.7 Avoid jogging controls or quick reversals of suspended loads.

7.1.8 Not leave a suspended load unattended. Operators shall be at the controls at all times when a load is suspended.

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- 7.1.9 Have a clear view of the load anytime it is moving and shall be sure that the load does not contact any obstructions. If a clear view is not available, the operator shall have a spotter positioned with a clear view of the load and a means of communication with the operator.
- 7.1.10 Make sure that the hook latch is closed and not supporting any part of the load.
- 7.1.11 Align the hoist or crane directly over the load. Avoid side pull.
- 7.1.12 For chain hoists, be sure there are no twists in the load chain as it enters the hoist.
- 7.1.13 Bring the hook into engagement with the load and make sure it is well seated before proceeding to lift the load.
- 7.1.14 Lift the load just clear of its supports and stop the hoist for proper brake operation.
- 7.1.15 Avoid letting the hook or load swing excessively while moving a trolley.
- 7.1.16 Ensure that Load or Hook are not lowered where less than Two full wraps remain on the drum.

## **7.2 FORKLIFT SAFETY INSTRUCTIONS**

- 7.2.1 The forklift operator shall
- 7.2.2 Always wear seat belts.
- 7.2.3 Not carry any riders.
- 7.2.4 Sound the horn at all intersections.
- 7.2.5 Make sure that all personnel are clear.
- 7.2.6 Stay in the confines of the forklift, remain under the overhead guard, and keep arms and legs inside.
- 7.2.7 Carry loads low and tilted back.
- 7.2.8 Travel in reverse, if the load blocks the operator's view,
- 7.2.9 Never turn on a grade.
- 7.2.10 Travel with the forks pointing downgrade when unloaded on grades, ramps,

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slopes, and inclines. Operator shall travel with the forks pointing up when loaded.

- 7.2.11 Never allow anyone to walk under raised forks.
- 7.12 Never raise people for overhead work unless the forklift is equipped with an approved personnel carrier.
- 7.2.13 Never carry loose or uneven material.
- 7.2.14 Spread the forks to fit the load.
- 7.2.15 Center a wide load.
- 7.2.16 Always fill out pre-usage checklist before use of forklift, and shall file it in the forklift folder. The folder is presently kept in room 207 of Bldg 4732.

### 7.3 EMERGENCY CONTACT TELEPHONE NUMBERS

#### PERSONNEL INJURY

Ambulance 911  
MSFC Safety 4-0046

#### EQUIPMENT DAMAGE OR FAILURE

Fire 911  
Facilities 4-3919  
MSFC Safety 4-0046

### 8.0 APPENDICES, DATA, REPORTS, AND FORMS

- 8.1 APPENDIX A Overhead Floor-Operated Crane Building 4732 Room 131 Wind Tunnel Pre-Usage Checklist
- 8.2 APPENDIX B Overhead Floor-Operated Crane Building 4777 C Bay PTE/ITL Pre-Usage Checklist
- 8.3 APPENDIX C Overhead Floor-Operated Crane Building 4777 B Bay TTE Pre-Usage Checklist
- 8.4 APPENDIX D Overhead Floor-Operated Crane Building 4777 A Bay North End SAF Pre-Usage Checklist
- 8.5 APPENDIX E Overhead Floor-Operated Crane Building 4775 Room 101 Pre-Usage Checklist
- 8.6 APPENDIX F Overhead Floor-Operated Crane All Manual Chain Hoists Buildings 4732, 4776, 4777 and 4775 Pre-Usage Checklist

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## 8.7 APPENDIX G Forklift Pre-Usage Inspection Checklist

## 9.0 RECORDS

Pre-usage crane inspection checklists shall be kept in each area and maintained by the Building Managers. Checklists for forklifts and cranes not covered by a specific area of responsibility shall be kept with the unit until the monthly TD74 safety meeting. During the safety inspection, the team shall discard checklists more than one month old.

## 10.0 BUILDINGS 4732, 4777, 4776 & 4775 HOIST & CRANE INFORMATION

See Appendixes A through G for operator's daily inspection checklists, or use MSFC Form 4332.

### 10.1 Building 4732 Room 131

Crane# 4732-crn-001

10-ton track with 10-ton lift capacity electric hoist. Single pendulum control, East-West trolley. Crane disconnect switch is on the north wall, east end.

### 10.2 Building 4732 Room 128 Model Build Room

Cranes#4732-HST-0002 & 4732-HST-0003

4-ton track with 1 1-ton lift capacity and 1 3-ton lift capacity chain hoists.

### 10.3 Building 4777 A Bay North End SAF Facility

Crane#4777-HST-0001

5-ton track with 5-ton lift capacity chain hoist. East-West motor driven trolley, pendulum controls. Disconnect located on west wall by roll-up door. Crane disconnect switch is on the north wall.

### 10.4 Building 4777 A Bay South End NTF Facility

Crane#4777-HST-0002

3-ton trolley with 1-ton hook chain hoist.

### 10.5 Building 4777 B Bay TTE Facility

Crane#4777-HST-0003

5-ton track with 5-ton lift capacity chain hoist. East-West motor driven trolley, pendulum controls. Crane disconnect switch is on the north wall, west end.

### 10.6 Building 4777 C Bay PTE/ITL Facilities

Crane#4777-CRN-001

3-ton capacity trolley with 1 2-ton electric lift. Pendulum control and 1 1-ton manual chain hoist. North-South trolley. Crane disconnect is on the north wall, west corner.

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10.7 Building 4775 Room 106 ITR Facility

Crane#4775-HST-0002

2-ton capacity swing arm crane with 1-ton manual chain hoist.

10.8 Building 4775 Room 101 High Reynolds

Crane#4775-HST-001

1 17-ton bridge with dual 8-ton hooks and 1 1-ton electric hoist. Pendulum control. North-South trolley. Crane disconnect switch is on the east wall, north end.

10.9 Building 4776 Room 103 WF Facility

Crane#4776-HST-0001 & 4776-HST-0002

2 swivel cranes, located on the north wall, west end are a 1-ton capacity with a 1-ton chain hoist. On the north wall, east end is a 1-ton capacity with 2 ½-ton chain hoists. All hoists are manual.

11.0 PERSONNEL TRAINING AND CERTIFICATION

Cranes, hoists and forklifts shall be operated only by certified personnel per MWI 3410.1D.



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## APPENDIX A

**Overhead Floor-Operated Crane**  
**Building 4732 Room 131 Wind Tunnel**  
**Pre-Usage Checklist**  
**Crane #** \_\_\_\_\_  
**Date** \_\_\_\_\_

Annual inspection and load test tags are within required intervals.  
All noted problems/discrepancies have been corrected.  
Fluid systems for leaks.  
Hoist operation up and brakes.  
Hoist operation down and brakes.  
Operation of upper limit switch with no load.  
Trolley movement North.  
Trolley movement South.  
Pendant control for wear and contamination.  
Hook for cracks, deformation, and latch damage.  
Wire rope for fraying, damage, kinks, and wire clips.

**Operator's Initials:** \_\_\_\_\_

Failure items are to be reported to the Facilities Work Order Desk  
4-3919 and corrected before use.

Note\* Operators, When changing test sections in the wind tunnel  
Close and lock the West entrance to the Wind Tunnel and make sure  
All non-essential personnel are clear of the area.

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## APPENDIX B

**Overhead Floor-Operated Crane**  
**Building 4777 C Bay PTE/ITL**  
**Pre-Usage Checklist**  
**Crane #** \_\_\_\_\_  
**Date** \_\_\_\_\_

Annual inspection and load test tags are within required intervals.  
All noted problems/discrepancies have been corrected.  
Fluid systems for leaks.  
Hoist operation up low speed and brakes.  
Hoist operation up high speed and brakes.  
Hoist operation down low speed and brakes.  
Hoist operation down high speed and brakes.  
Operation of upper limit switch with no load.  
Trolley movement North and brakes.  
Trolley movement South and brakes.  
Pendant control for wear and contamination.  
Hook for cracks, deformation, and latch damage.  
Wire rope for fraying, damage, kinks, and wire clips.

**Operator's Initials:** \_\_\_\_\_

Failure items are to be reported to the Facilities Work Order Desk  
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## APPENDIX C

### Overhead Floor-Operated Crane

Building 4777 B Bay TTE

#### Pre-Usage Checklist

Crane # \_\_\_\_\_

Date \_\_\_\_\_

Annual inspection and load test tags are within required intervals.

All noted problems/discrepancies have been corrected.

Fluid systems for leaks.

Hoist operation up.

Hoist operation down.

Trolley movement North and brakes.

Trolley movement South and brakes.

Pendant control for wear and contamination.

Hook for cracks, deformation, and latch damage.

Operator's Initials: \_\_\_\_\_

Failure items are to be reported to the Facilities Work Order Desk 4-3919 and corrected before use.

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## APPENDIX D

**Overhead Floor-Operated Crane**  
**Building 4777 A Bay North End SAF**  
**Pre-Usage Checklist**  
**Crane #** \_\_\_\_\_  
**Date** \_\_\_\_\_

Annual inspection and load test tags are within required intervals.  
All noted problems/discrepancies have been corrected.  
Fluid systems for leaks.  
Hoist operation up low speed and brakes.  
Hoist operation up high speed and brakes.  
Hoist operation down low speed and brakes.  
Hoist operation down high speed and brakes.  
Operation of upper limit switch with no load.  
Trolley movement North and brakes.  
Trolley movement South and brakes.  
Pendant control for wear and contamination.  
Hook for cracks, deformation, and latch damage.  
Wire rope for fraying, damage, kinks, and wire clips.

**Operator's Initials:** \_\_\_\_\_

Failure items are to be reported to the Facilities Work Order Desk  
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## APPENDIX E

**Overhead Floor-Operated Crane**  
**Building 4775 Room 101**  
**Pre-Usage Checklist**  
**Crane # RR340**  
**Date \_\_\_\_\_**

Annual inspection and load test tags are within required intervals.  
All noted problems/discrepancies have been corrected.  
Fluid systems for leaks.  
North hoist operation up and brakes.  
North hoist operation down and brakes.  
North hoist operation of upper limit switch with no load.  
North trolley movement North.  
North trolley movement South.  
South hoist operation up and brakes.  
South hoist operation down and brakes.  
South hoist operation of upper limit switch with no load.  
South trolley movement North.  
South trolley movement South.  
Bridge movement East and brakes.  
Bridge movement West and brakes.  
Pendant control for wear and contamination.  
Hook for cracks, deformation, and latch damage.  
Wire rope for fraying, damage, kinks, and wire clips.

**Operator's Initials: \_\_\_\_\_**

Failure items are to be reported to the Facilities Work Order Desk  
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## APPENDIX F

**Overhead Floor-Operated Crane**  
**All Manual Chain Hoists**  
**Buildings 4732, 4776, 4777 and 4775**  
**Pre-Usage Checklist**  
**Crane #** \_\_\_\_\_  
**Date** \_\_\_\_\_

Annual inspection and load test tags are within required intervals.  
 All noted problems/discrepancies have been corrected.  
 Fluid systems for leaks.  
 Hoist operation up.  
 Hoist operation down.  
 Trolley movement North.  
 Trolley movement South.  
 Bridge movement East.  
 Bridge movement West.  
 Hook for cracks, deformation, and latch damage.  
 Hoist chains for excessive wear or distortion.

**Operator's Initials:** \_\_\_\_\_

Failure items are to be reported to the Facilities Work Order Desk  
 4-3919 and corrected before use.

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## APPENDIX G

### Forklift Pre-Usage Inspection Checklist

MSFC # \_\_\_\_\_

Date \_\_\_\_\_

Annual inspection and load test tags are within required intervals.

All noted problems/discrepancies have been corrected.

#### Visual inspection of:

Tires

Overhead guard

Lift chains and cylinders

Lift forks

Fork locks

Load backrest

Hydraulic system for leaks or loose fittings

Adequate fuel

#### Operational check of:

Horn

Hydraulic system, raise and lower forks, shift and tilt

Forward and reverse movement

Backup warning

Steering

Brakes

Emergency brake

Operator's Initials: \_\_\_\_\_

Failure items are to be reported to the Service Desk 4-4476 and corrected before use.